REMARKS

In a Final Office Action dated October 31, 2006 the Examiner in charge of this case rejected the claims of this application. Claims 1, 4, 5 and 7-12 are currently pending in the application; and Claims 4, 7, 9 and 10 remain withdrawn from consideration as being directed to a non-elected invention. Claims 1, 5, 8, 11 and 12 are rejected under 35 U.S.C. §112, 1st ¶ and Claims 1, 8, and 11 are rejected under 35 U.S.C. §112, 2nd ¶. Applicants respond by submitting the amendments above, comments set forth hereinbelow and a Declaration of Dr. Alan Attie, herewith. Based on this submission, reconsideration of the merits of this patent application is respectfully requested.

Claim Amendments

Claims 1, 5, 11 and 12 are amended for clarification only and not for reasons related to patentability, in the hopes of expediting prosecution on the merits and to obviate any need for an Appeal. Specifically, the phrases "selected from the group consisting of a gene" and "the gene encoding stearoyl CoA desaturase" are deleted from these claims. Support is found throughout the specification, for example, at Tables 1, 2 and 3.

Claim 8 is cancelled in view of new Claims 13 and 15 to prevent duplicative claim language. New Claims 13-18 are included to more specifically define the claimed embodiments and to identify as well as establish allowable subject matter. No new matter is added by amending the claims. Applicants submit that in view of the above arguments and amendments, all rejections are overcome.

Claim Rejections - 35 USC §112, first paragraph

Claims 1, 5, 8, 11 and 12 continue to be rejected under 35 U.S.C. 112, 1st ¶ for allegedly lacking enablement. Specifically, the Examiner reiterates the reason recited in the Office Action date February 10, 2006, which is that the specification does not include the genes encoding add1/SREBP, cytochrome c oxidase, and stearoyl-CoA desaturase in adipose tissue as being associated with hyperglycemia and diabetic disease.

In regards to Claim 12 drawn to a method of diagnosing susceptibility to obesity, the Examiner further asserts that such methods are enabled in mice but not for other individuals. This rejection is respectfully traversed.

To support applicants' position on the adequacy of enablement, submitted with this response is a Declaration of Alan D. Attie, one of the inventors of the present patent application. A Supplemental Information Disclosure Statement is also submitted herewith enclosing research articles referred to in Dr. Attie's Declaration, which were not previously disclosed to the USPTO. Dr. Attie's Declaration is intended to establish that (1) the claimed methods apply equally to diagnosing disease in humans as well as mouse; (2) the specification as a whole along with the state of the art as of the filing date are sufficient to establish enablement for claimed methods; and (3) the genetic associations predicted by applicants have been validated independently. As such, it is believed that the submission of this Declaration will obviate the enablement rejection applied by the Examiner against the claims of this patent application.

Paragraphs 3-5 of Dr. Attie's Declaration outline several reasons why mouse data for diagnosing susceptibility to diabetes and obesity is predictive of human results. Dr. Attie states that in his laboratory they have created common inbred mouse strains to replicate the variable susceptibility of all mammals including human to diabetes and have been successfully mined for pathways and genes relevant to human diabetes and obesity (Clee, S.M., and Attie, A.D. (2007) *Endocr Rev* 28:48-83).

In the Declaration, Dr. Attie confirms that the basic biochemical processes, genes (see corresponding human homologue accession numbers in Tables 1-3 of the specification), enzymes, and pathways of the mouse are identical to a human. It is also widely known that by modifying the expression of genes through transgenic technology, mice have been produced that have similar protein expression profiles to humans (see Grass, D.S. et al. (1995) *J Lipid Res* 36:1082-1091; Herrera, V.L. et al., (1999) *Nat Med* 5:1383-1389; Masucci-Magoulas, L., et al., (1997) *Science* 275:391-394; and Takahashi, H., et al., (2001) *Biochem Biophys Res Commun* 283:118-123). Accordingly, the mouse is considered a suitable animal model for studying the expression of genes related to the onset of diabetes and/or obesity in humans.

Next, it is noted that applicants were the first to discover that a decrease in expression levels of SREBP, cytochrome c oxidase, and stearoyl-CoA desaturase, regulated by SREBP, is prognostic and diagnostic of diabetes and/or obesity. This unprecedented discovery deserves reasonably broad claim coverage, as applicants believe that it was sufficiently

described in the instant specification (see paragraph 7 of Dr. Attie's Declaration). For example, the specification describes a decrease in the expression of (1) mitochondrial enzymes, such as cytochrome c oxidase (see, Table 3, pg. 17; and pg. 10, [00037]), and/or (2) SREBP (see, Table 1, pg. 5, [00019] and pg. 6, [00021]) in adipose tissue are good indicators of susceptibility to diabetes and obesity.

In addition to the guidance provided by the specification, applicants believe that one of ordinary skill will look to the teachings of the art for further guidance and enablement of a claimed invention (see paragraph 8 of Dr. Attie's Declaration). Notably, the level of knowledge and skill in the art at the time of filing was such that a skilled artisan could read the specification and practice the claimed methods without undue experimentation. As one example, it was generally known that insulin resistance is related to pre-diabetes, diabetes and obesity. Furthermore, the specification identified and described the genes which have expression patterns diagnostic of the onset of diabetes and obesity. Thus, collectively, the description in the specification along with the level of skill in art at the time of filing is sufficient to satisfy the enablement requirement for the claimed embodiments.

Additionally, since the application was filed on September 18, 2001, researchers in the field have further validated the associations predicted in the instant application in higher mammals, such as humans. There are numerous independent reports validating the genetic associations predicted by applicants in the application (i.e., correlating the decreased gene expression in adipose tissue with diabetes and/or obesity). These reports are described in the Declaration and summarized in Table 1 below.

Table 1

Author	Model	Tissue	Gene	Expression	Disease
Sewter et al.	human	Adipose	SREBP	decrease	Obesity/ Diabetes
Ducluzeau et al.	human	Adipose	SREBP	decrease	Obesity /Diabetes
Yang et al.	human	Adipose	SREBP	decrease	Diabetes
Lee et al.	human	Adipose	cytochrome c-oxidase	decrease	Obesity
Choo et al.	mice	Adipose	Mitochondrial enzymes	decrease	Diabetes
Asmann et al.	human	muscle	cytochrome c-oxidase	decrease	Diabetes

Specifically, in the Declaration, Dr. Attie states that Sewter et al. show that transcript levels of SREBP were significantly decreased in adipose tissue of obese and type 2 diabetics compared to non-obese normoglycemic controls. Specifically, to establish the effect of insulin on human SREBP gene expression, Sewter et al. explored whether common insulin-resistant states such as obesity and type 2 diabetes were associated with impaired expression of SREBP. They showed decreased expression of SREBP1 mRNA in adipose tissue for both obese normoglycemic and obese type 2 diabetic patients. (See Human Obesity and Type 2 Diabetes Are Associated With Alterations in SREBP1 Isoform Expression That Are Reproduced *Ex Vivo* by Tumor Necrosis Factor- *Diabetes* 51:1035-1041 (2002)).

The Declaration also provides that Ducluzeau et al. demonstrate an association between impaired expression levels of SREBP in human adipocytes with susceptibility to obesity and diabetes. (See Regulation by Insulin of Gene Expression in Human Skeletal Muscle and Adipose Tissue Evidence for Specific Defects in Type 2 Diabetes; *Diabetes* 50:1134-1142 (2001)). Similarly, to support applicants' position that a reasonable association exists between decreased expression levels of SREBP and diabetes. Dr. Attie discloses that Yang et al. characterizes gene expression profiles of isolated adipose cells of non-diabetic insulin-resistant first-degree relatives of type 2 diabetic patients using oligonucleotide microarrays. The expression of adipogenic transcription factors, such as SREBP, was reduced in the adipose tissue. The findings suggest that insulin resistance (a diabetes precursor) is associated with impaired adipogenesis. (See *Biochem Biophys Res Commun.* May 14;317(4):1045-51 (2004)).

Still further, the Declaration states that a decrease in adipose tissue stearoyl-CoA desaturase (SCD) expression levels is associated with diabetes susceptibility, as well as obesity. To support this notion, the Declaration states that the expression of SCD is controlled by and directly correlates with the expression of SREBP, known to be associated with diabetes (see, Shimomura et al., Nuclear Sterol Regulatory Element-binding Proteins Activate Genes Responsible for the Entire Program of Unsaturated Fatty Acid Biosynthesis in Transgenic Mouse Liver, *J Biol Chem,* 273(52), 35299-35306 (1998)). Shimomura et al. report that over expression of SREBPs led to an increase in total SCD activity in liver

microsomes. Thus, a skilled artisan can soundly predict that a decrease in SCD expression is also associated with diabetes.

As to mitochondrial protein expression being predictive of susceptibility to diabetes or obesity, Dr. Attie discusses several articles in the Declaration that support this notion. For example, Choo et al. demonstrate that levels of mitochondrial proteins, such as cytochrome c oxidase were greatly decreased in the adipocytes of db/db mice. Indeed, Figure 6 shows a decrease in ubiquinone cytochrome c oxidoreductase in the diabetic mice and a restoration of expression after treatment with rosiglitazone (an agent that enhances insulin sensitivity). Thus, Choo et al. establishes a correlation between mitochondrial loss in adipose tissue and the development of type 2 diabetes. (See Mitochondria are impaired in the adipocytes of type 2 diabetic mice, *Diabetologia*, Vol. 49 (4) Pages: 784 - 791 (2006)).

Notably, Lee et al. investigated the gene expression profiles of isolated adipocytes from abdominal subcutaneous adipose depots in obese and non-obese, non-diabetic Pima Indians, a population with one of the highest prevalence rates of obesity and type 2 diabetes. individuals. Lee et al. report a decreased expression of cytochrome c oxidase in obese individuals. (See Microarray profiling of isolated abdominal subcutaneous adipocytes from obese vs. non-obese Pima Indians: increased expression of inflammation-related genes, *Diabetologia*, Vol. 48:1776-1783, Electronic Supplementary Material Table 1, pg. 6; submitted herewith in an IDS).

Still further, Asmann et al. report that the transcript levels of the majority of genes encoding mitochondrial proteins were expressed at lower levels in type 2 diabetic patients. Specifically, Fig. 5D shows that increasing insulin levels reduced the expression of Cox1 in type 2 diabetics (see *Diabetes*, Vol. 55, pg. 3309-3319 (2006); submitted herewith in IDS). Based on the forgoing remarks, applicants believe that the enablement requirement for the claimed embodiments is more than satisfied. Accordingly, applicants respectfully request that the rejection be reconsidered and withdrawn.

Claim Rejections - 35 USC §112, second paragraph

Claims 1, 8, and 11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the Examiner asserts that the phrase "non-diabetic individuals" in Claim 1 lacks antecedent basis. Amended Claim 1 now includes the appropriate basis.

Claim 8 directed to SREBP is allegedly indefinite over the determination step. In response Claim 8 is cancelled in view of new Claims 13 and 15 drawn to SREBP. Claim 11 is allegedly indefinite in view of the limitation "being associated with the transition from obese to diabetic." This language was replaced with "and non-obese." It is believed this amendment also addresses the alleged inconsistency in terms of the control diabetic and obese individuals. No new matter is added. Support is found for example, throughout the specification and within the claims.

No new issues requiring additional searching or further consideration are presented here. Thus, in view of the above claim amendments and remarks, applicants respectfully request reconsideration of the rejections, entry of the claim amendments and issuance of a timely Notice of Allowance in this case.

A petition for a three-month extension of time and a Request for Continuing Examination (RCE) are enclosed so that this response will be considered as timely filed. Also, accompanying this response is an inventor's Declaration and a Supplemental Information Disclosure Statement. No other fees are believed due in regard to this submission. If any other fee is due or any other extension of time is required in this or any subsequent response, please consider this to be a petition for the appropriate extension and a request to charge the petition fee to the Deposit Account No. 17-0055.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service on the date set forth below as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P O Box 1450, Alexandria, VA 22313-1450.

Date of Signature and Deposit: April 30, 2007

Sara D. Vinarov

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Alan D. Attie
Samuel T. Nadler

Date: April 30, 2007

Serial No.: 09/955,367

Group Art Unit: 1634

Filed: 09/18/2001

Examiner: Diana B. Johannsen

Title: EXPRESSION OF GENES IN DIABETES MELLITUS AND INSULIN RESISTANCE

File No.: 960296.97478

Confirmation No.: 8344

DECLARATION OF ALAN D. ATTIE
Under 37 CFR 1.132

Mail Stop AF
Commissioner for Patents
P O Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Alan D. Attie, on oath declare and sayeth that:

1. I am the same Alan D. Attie who is a named co-inventor on the above-identified patent application. I make this declaration in support of that patent application. I am a professor in the Department of Biochemistry at the University of Wisconsin-Madison. I have worked as a scientist specializing in the general area of diabetes for 12 years. I have published extensively in this area. A copy of my *Curriculum Vitae* is attached as Exhibit A.

2. I have reviewed the above-identified application and understand the nature and scope of the invention claimed therein. I have also reviewed the Office Action issued by the U.S. Patent and Trademark Office (USPTO) on October 31, 2006 for this application. I understand that currently Claims 1, 5, 8, 11 and 12 stand rejected as failing to comply with the enablement requirement. Specifically, in the present Office Action, it appears the Examiner is

satisfied that the claims are enabled for diagnosing susceptibility to diabetes or obesity in mice, but not in humans.

3. I respectfully disagree with the Examiner's assertion. I note that with technological advancement use of mouse data to forecast a human response is more predictable that ever for a variety of reasons. To begin with, the mouse is the most widely used animal model in obesity and diabetes research (see Breslow, J.L. (1993) *Proc Natl Acad Sci U S A* 90:8314-8318; De Winther, M.P., and Hofker, M.H. (2002) *Curr Opin Lipidol* 13:191-197; and Marschang, P., and Herz, J. (2003) Semin Cell Dev Biol 14:25-35). The same broad usage of the mouse is true of virtually all human diseases, even non-metabolic diseases like cancer (Sharpless, N.E., and Depinho, R.A. (2006) *Nat Rev Drug Discov* 5:741-754) and neurodegenerative diseases (Kahle, P.J., and Haass, C. (2001) *Expert Opin Ther Targetes* 5:125-132).

4. It is also widely known that by modifying the expression of genes through transgenic technology, mice have been produced that have similar protein expression profiles to humans (See Grass, D.S. et al. (1995) *J Lipid Res* 36:1082-1091; Herrera, V.L. et al., (1999) Nat Med 5:1383-1389; Masucci-Magoulas, L., et al., (1997) *Science* 275:391-394; and Takahashi, H., et al., (2001) *Biochem Biophys Res Commun* 283:118-123) and also atherosclerotic lesions and heart failure (see Braun, A., et al., (2002) *Circ Res* 90:270-276 and Zhang, S., et al., (2005) Circulation 111:3457-3464) resembling that of humans. Notably, in my laboratory, we have created common inbred mouse strains to replicate the variable susceptibility of all mammals, including human, to diabetes and obesity. Using these mice, we have successfully mined for pathways and genes relevant to human disease, such as, diabetes (Clee, S.M., and Attie, A.D. (2007) *Endocr Rev* 28:48-83).

5. Indeed, in the pharmaceutical industry, one of the most important early validation studies of a drug target involves a transgenic mouse where a gene is either knocked out or overexpressed (depending on whether the desired drug is an antagonist or agonist of the target). If the mouse does not show a phenotype replicating the desired therapeutic outcome, then the target is usually deemed invalid. Therefore, I believe that the mouse is a particularly suitable animal model for predicting and studying disease, such as obesity and diabetes in humans.

6. Next, on page 3 of the Office Action, it appears the Examiner suggests that the specification is not enabled for diagnosing susceptibility to diabetes and/or obesity by determining and comparing the expression pattern of SREBP, cytochrome c oxidase, or SCD from adipose tissue with expression profiles of non-diabetic or non-obese individuals. The

Examiner also suggests that the state of the art as of the filing date of the application is insufficient to establish the required enablement.

7. I respectfully disagree with the Examiner's assertion. We were the first to discover that a decrease in expression levels of SREBP, cytochrome c oxidase, and stearoyl-CoA desaturase (regulated by SREBP) is associated with diabetes and/or obesity and the transition from obesity to diabetes. I also believe that this discovery was sufficiently described in the application. For example, the specification describes that a decrease in the expression patterns of (1) mitochondrial enzymes, such as cytochrome c oxidase (see, Table 3, pg. 17; and pg. 10, [00037]), and/or (2) SREBP (see, Table 1, pg. 5, [00019] and pg. 6, [00021]) in adipose tissue are good prognostic and diagnostic indicators of susceptibility to diabetes and/or obesity.

8. In addition to the guidance provided by the specification, I believe that the level of knowledge in the art at the time of filing was such that a researcher in this field would be able to read the specification and practice the claimed methods. For example, at the time of filing, among other things, it was generally known that insulin resistance is related to pre-diabetes, diabetes and obesity. The specification describes the genes which have expression patterns diagnostic of the onset of diabetes and/or obesity. Thus, collectively, the description in the specification along with the level of knowledge at the time of filing is sufficient to practice our methods.

9. Moreover, since then several groups have independently validated the associations between decreased expression of adipose tissue proteins: SREBP, cytochrome c oxidase and SCD, and susceptibility to diabetes and/or obesity described in the application. For example, in relation to SREBP, Sewter et al. report that transcript levels of SREBP were significantly decreased in human adipose tissue of obese and type 2 diabetics compared to non-obese normoglycemic controls. Specifically, to establish the effect of insulin on human SREBP gene expression, Sewter et al. explored whether common insulin-resistant states such as obesity and type 2 diabetes were associated with impaired expression of SREBP. They showed decreased expression of SREBP1 mRNA in adipose tissue for both obese normoglycemic and obese type 2 diabetic patients. (See Human Obesity and Type 2 Diabetes Are Associated With Alterations in SREBP1 Isoform Expression That Are Reproduced *Ex Vivo* by Tumor Necrosis Factor- *Diabetes* 51:1035-1041 (2002)).

10. Likewise, Ducluzeau et al. demonstrate an association between impaired expression levels of SREBP in human adipocytes and susceptibility to obesity and diabetes.

(See Regulation by Insulin of Gene Expression in Human Skeletal Muscle and Adipose Tissue Evidence for Specific Defects in Type 2 Diabetes; *Diabetes* 50:1134-1142 (2001)).

11. Also, Yang et al. characterize gene expression profiles of isolated adipose cells of non-diabetic insulin-resistant first-degree relatives of type 2 diabetic patients using oligonucleotide microarrays. The expression of adipogenic transcription factors, such as SREBP, was reduced in the adipose tissue, suggesting that insulin resistance (a diabetes precursor) is associated with impaired adipogenesis. (See *Biochem Biophys Res Commun.* May 14;317(4):1045-51 (2004)).

12. Still further, I believe that a decrease in adipose tissue stearoyl-CoA desaturase (SCD) expression levels is associated with susceptibility to diabetes and/or obesity. This notion is supported by the fact that expression of SCD is controlled by and directly correlates with the expression of SREBP, known to be associated with diabetes. Thus, it is believed that an over or under- expression of SREBPs leads to a corresponding increase or decrease in total SCD activity. (See, Shimomura et al., Nuclear Sterol Regulatory Element-binding Proteins Activate Genes Responsible for the Entire Program of Unsaturated Fatty Acid Biosynthesis in Transgenic Mouse Liver, *J Biol Chem,* 273(52), 35299-35306 (1998)). Thus, a skilled researcher can soundly predict that a decrease in SCD expression is an indicator of susceptibility to diabetes and/or obesity.

13. In regards to a decrease in mitochondrial protein expression being diagnostic of susceptibility to diabetes and/or obesity, researchers have also validated this prediction. For example, Lee et al. investigated the gene expression profiles of isolated adipocytes from abdominal subcutaneous adipose depots in obese and non-obese, non-diabetic Pima Indians. Notably, Pima Indians are a population with one of the highest prevalence rates of obesity and type 2 diabetes. Lee et al. report a decreased expression of cytochrome c oxidase in obese individuals. (See Microarray profiling of isolated abdominal subcutaneous adipocytes from obese vs. non-obese Pima Indians: increased expression of inflammation-related genes, *Diabetologia*, Vol. 48:1776-1783, Electronic Supplementary Material Table 1, pg. 6).

14. As further support, I note that Choo et al. demonstrate that levels of mitochondrial proteins, such as cytochrome c oxidase were greatly decreased in the adipocytes of db/db mice. Indeed, Figure 6 shows a decrease in ubiquinone cytochrome c oxidoreductase in the diabetic mice and a restoration of expression after treatment with rosiglitazone (an agent that enhances insulin sensitivity). Thus, Choo et al. was able to establish the correlation between mitochondrial loss in adipose tissue and the development of

type 2 diabetes. (See Mitochondria are impaired in the adipocytes of type 2 diabetic mice, *Diabetologia*, Vol. 49 (4) Pages: 784 - 791 (2006)).

15. Notably, Asmann et al. also report that the transcript levels of the majority of genes encoding mitochondrial proteins, such as cytochrome c oxidase, were expressed at reduced levels in type 2 diabetics. (See *Diabetes*, Vol. 55, pg. 3309-3319, Fig. 5D (2006)). Accordingly, I believe that the specification as filed and the state of the art as of the filing date provide sufficient enablement for the methods claimed. Furthermore, since the filing date, the scientific literature has validated the diagnostic methods described in the application.

16. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Further declarant sayeth not.

Dated: 4/30/07

Alan D. Attie

CURRICULUM VITAE

Alan D. Attie

Date and place of birth

June 18, 1955; New York City

Education

1976 B.S. Department of Biochemistry, University of Wisconsin-Madison

1980 Ph.D. Department of Biology, University of California-San Diego

Positions held

1976-1980: Research Assistant, Department of Biology, University of California-San Diego.

1980-1982: Postdoctoral Fellow, Department of Medicine, University of California-San Diego.

1982-1989: Assistant Professor, Departments of Biochemistry & Comparative Biosciences, University of Wisconsin-Madison.

1989-1995: Associate Professor, Departments of Biochemistry & Comparative Biosciences, University of Wisconsin-Madison.

1995-present: Professor, Department of Biochemistry, University of Wisconsin-Madison.

Honors & awards

1980: "Fellows' Research Award", Annual meeting of the American Association for the Study of Liver Disease, Chicago.

1980-1982: Postdoctoral Fellowship Award, American Liver Foundation.

1984-1989: Shaw Scholar Award.

1987-1992: Established Investigator of the American Heart Association.

1993: Romnes Faculty Fellow Award.

1995: David Rubinstein Memorial Lecturer, Canadian Lipoprotein Conference, Jasper, Alberta.

1998: Dave McClain Research Award, American Heart Association/Wisconsin Affiliate

2000-2002: Vilas Associate Award

2001: Carl J. Norden Distinguished Teaching Award (Honorable Mention) University of Wisconsin-Madison School of Veterinary Medicine

2003: Co-chairman, Atherosclerosis Gordon Conference

2006: Grand Rounds Speaker & Visiting Professor for cardiovascular fellows, Department of Cardiovascular Medicine, Cleveland Clinic.

Society memberships

- American Society for Biochemistry and Molecular Biology
- Fellow, Arteriosclerosis Council, American Heart Association
- American Diabetes Association

Study Sections

- American Heart Association/Wisconsin Affiliate (1985-90; 1994-97)
- American Heart Association (National) Lipoprotein, Lipid Metabolism & Epidemiology (1987-90)
- U.S. Dept. of Agriculture, Human Nutritional Requirements Grants (1991)
- State of California Tobacco-related Disease Program (1993)
- NIH Nutrition Study Section; *Ad hoc* (1992)
- NIH Physiological Chemistry Study Section; *Ad hoc* (1996)
- American Heart Association/Midwest Consortium, Chairman of Study Section (1998-1999)
- NIH site visits (1997, 1999)

- NIH RFA: "Development of Phenotypic Screens for Heart, Lung, and Blood Diseases" Chair (2000)
- American Diabetes Association Research Grant Review Panel (2002-2005)
- NIDDK Board of Scientific Counselors (2004-2008).

Editorial Boards

- *Journal of Clinical Investigation* (2007-2010)
- *Journal of Biological Chemistry* (2002-2007)
- *Journal of Lipid Research* (Associate Editor 07/01/03- present)
- *Diabetes* (2002-2006)
- *Vascular Pharmacology* (2003-present)

Professional service

- Research Task Force, American Heart Association/Wisconsin Affiliate (1989-90)
- Credentials Committee, Arteriosclerosis Council, American Heart Association (1989-92)
- Program Committee, Arteriosclerosis Council, American Heart Association (1991-94)
- Executive Committee, Arteriosclerosis Council, American Heart Association (1992-95)
- *Ad hoc* reviewer, NIH, NSF, USDA, VA, Canadian Heart Foundation, Canadian MRC, Wellcome Trust, Dutch Heart Foundation grants
- Organizer, 20th Steenbock Symposium: *Molecular Biology of Atherosclerosis* (1990)
- External reviewer, Alberta Heritage Foundation Lipid & Lipoprotein Research Group, University of Alberta, Edmonton (1991)
- External consultant for curriculum development, St. Mary's University, San Antonio, TX (1994)
- Consultant and member of SAB, Xenon Genetics, Vancouver, BC Canada (1999-2003)
- External Advisory Committee, Southwest Foundation for Biomedical Research Program Project on Genetics of Metabolic Syndrome (2006-)
- Organizing Committee for 2007 American Diabetes Association Conference

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